**Case Report: Treatment With Azithromycin For Acne Vulgaris: The Current Scenario**

Mable Babu  
Department Of Pharmacy Practice, S.J.M College of Pharmacy, Chitradurga,Karnataka, India

**Abstract:** Introduction-Acne vulgaris or simply (acne) is a common dermatological problem. It is caused due to Propionibacterium acnes. Oral antibiotics are the widely administered effective drugs, which are prescribed as systemic therapy for treatment of moderate to severe acne vulgaris. Azithromycin is one of the antibiotics that have been recently used for acne treatment. There are several protocols of oral azithromycin in the treatment of acne.Aim-The main objective of this report was to assess the efficacy, safety, tolerability and compliance of 500 mg azithromycin administered thrice weekly for 8 weeks in the treatment of acne vulgaris. Methods-The patient is a 24 year old female diagnosed with Acne vulgaris. The treatment was carried out in Dermatology department of BasaveshwaraMedical College Hospital and Research Centre, Chitradurga by a dermatologist using special grading system GAGS (Global Acne Grading System). After the baseline visit, patients were scheduled to return at four-weekly intervals for 12 weeks. Efficacy was gauged by the difference between the number of lesions observed at baseline and the number seen in subsequent examinations. Safety assessments included the monitoring of adverse events, compliance and tolerability was checked at the four-weekly regular visits up to 12 weeks. Results-The efficacy of the therapy was evaluated by the results made during treatment. The patient did not have any reduction on the baseline treatment whereas she reported a reduction of acne lesions upto 75% in the 4th week, upto 85% in the 8th week and upto 90% in the 12th week. Maximum clearance (90%) was observed at 12th week. On the basis of the whole, the total efficacy of Azithromycin was 83% for the treatment of acne vulgaris.Conclusion-This study concluded that Azithromycin, 500 mg thrice weekly for 8 weeksis a safe and effective treatment for acne vulgaris with excellent patient compliance.  
**Keywords**-Acne vulgaris, Propionibacterium acnes, GAGS, Azithromycin, Compliance

1. **Introduction**

Acne vulgaris is a common inflammatory disorder of the Pilo-sebaceous follicles. [1] Various clinical presentations include seborrhoea, comedones, erythematous papules and pustules, less frequently nodules, deep pustules or pseudocysts and ultimate scarring in few of them. Acne has four main pathogenetic mechanism—increased sebum productions, follicular hyperkeratinization, Propionibacterium acne (P. acne) colonization and the products of inflammation.

It is one of the commonest skin disorders which dermatologists have to treat. [2] It has a high prevalence, occurring mainly in adolescence. Although the peak of prevalence is around the 17th year of life, acne lesions can appear earlier and are not uncommonly observed in the age group ranging from 12 to 14 years, in which the condition is underreported.

Early effective treatment of acne lesions is very important to prevent facial scars that lead to cosmetic and psychological impact to the patients. In recent years, due to better understanding of the pathogenesis of acne, new therapeutic modalities have been designed.[3] Availability of new treatment options to complement the existing armamentarium will help to achieve the successful therapy of greater number of acne patients, ensure improved tolerability and fulfill patient expectations. Successful management of acne needs careful selection of anti-acne agents according to clinical presentation and individual patient needs. [2]

Antibiotic therapy has long been found useful in the management of moderate-to-severe acne vulgaris. Mechanism of action includes suppressing growth of PA, reducing the production of inflammatory mediators and acting in immune modulation. Commonly prescribed antibiotics includetetracyclines, doxycycline, minocycline, limecycline and erythromycin. [1] For the last 2-3 decades, systemic antibiotics, mainly tetracyclines and erythromycins have assumed the main role in the management of acne patients with inflammatory papules and cysts. They require frequent administration and are sometimes associated with side effects, contributing to reduced compliance. [4]

Azithromycin is one of the antibiotics that have been recently prescribed for treatment of acne which is as effective as doxycycline and minocycline. [5] Azithromycin belongs to the
The azalide group of antibiotics and is closely related structurally to macrolides like erythromycin. It is more tissue stable, penetrates deeply into tissue and has a higher terminal half-life than erythromycin. [4]

2. Methods

The patient who had been undertaken for the study was a 24 year old female patient who had visited the Female ward of Dermatology department in Basaveshwara Medical College Hospital and Research Centre on 20/02/2016 with diagnosis as Acne vulgaris. The primary focus of this report was to assess the efficacy, safety, tolerability and compliance of 500 mg azithromycin thrice weekly for 8 weeks in the treatment of acne.

The patient was examined by a dermatologist and an assessment was made regarding the full count of acne lesions by using the special grading system of GAGS (Global Acne Grading System) in which the lesions were counted at the beginning of the treatment and at 4-weekly intervals for 12 weeks and visits were done at the end of first, second and third month. The difference between the number of lesions observed at baseline and the number seen in subsequent examinations were used to evaluate the efficacy of therapy. The patient was being to the exact physical examination and was graded by GAGS. In GAGS: Acne patients were assigned into 4 grades ie,

- Mild = 1-18 Score
- Moderate = 19-30 Score
- Severe = 31-38 Score
- Very Severe >39 Score

At every check-up, the clinical response to azithromycin, any adverse events and patient tolerance had been assessed thoroughly. The patient did not have a history of macrolide sensitization, anti-androgenic drugs, oral isotretinoin, topical therapy nor had been previously treated with antimicrobials such as doxycycline, minocycline and erythromycin. The patient was advised not to undergo any beauty procedures such as chemical peels and bleaches and was allowed to use only topical rinse-off cleaners during the follow-up period.

At each visit, acne lesions were assessed by a blinded dermatologist according to treatment protocols and GAGS was used to evaluate the response of the patient to the treatment. The efficacy of each visit was investigated by comparing the decrease of acne score at each visit, with the baseline and previous session grade.

3. Results and Discussion

The patient was on treatment consecutively for 8 weeks from 20/02/2016 to 20/04/2016 when her lesions had been normalized. The efficacy of the therapy was evaluated by focusing on the results of the analysis made during the treatment. The patient did not have any significant reduction on the baseline treatment period whereas she reported a reduction of acne lesions upto 75% in the 4th week, upto 85% in the 8th week and upto 90% in the 12th week. Maximum clearance (90%) was observed at 12th week. On the basis of the whole, the total efficacy of Azithromycin was 83% for treatment of acne vulgaris. Similar results were obtained by Fernandez et al., who administered azithromycin 250 mg per day for 3 days in a week. After a follow up of 4 weeks he found 85% reduction in acne lesions compared with 77.1% for other antibiotics (doxycycline, tetracycline and minocycline). [4] Another study, HamidehMoravej et al., designed a study to compare the efficacy and safety of azithromycin and doxycycline in treating inflammatory acne vulgaris during a 12-week treatment period. The study demonstrated that azithromycin is a safe and effective choice in treating acne, which is as effective as doxycycline. Thus, azithromycin can be considered as a proper alternative for the treatment of acne vulgaris. [7]

<table>
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<th>Table 1. Evaluation of efficacy of therapy</th>
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<td><strong>Response of the patient</strong></td>
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<td>Baseline</td>
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<td>4th week</td>
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<td>8th week</td>
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<td>12th week</td>
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Acne vulgaris is a common skin disorder among children and young adults that carries enormous financial and psychosocial impact. [8] Early and adequate treatment will reduce the severity of the problem and the long-term risk of scarring. The choice of treatment depends on the clinical severity. [9] As a first line systemic treatment, most authors recommend the use of systemic antibiotics including tetracyclines, doxycycline, minocycline, lymecycline and erythromycin. [10] Recently, azithromycin has been added to this list. [11]

Comparative clinical trials have shown that the tolerability profile of azithromycin is superior to that of erythromycin and doxycycline [6] which is
similar to the results conducted in our study. Moreover, tetracyclines can cause both mucocutaneous and systemic adverse effects. Azithromycin has many advantages compared to other antibiotics. It is more stable than erythromycin in low gastric pH, it produces fewer gastrointestinal side-effects and does not present any major drug interactions. [13] Our study conveyed that Azithromycin had a less frequent dose, was easy to administer and was effective in controlling and clearing acne. The ease of this pulse regimen contributed to patient and parental compliance and cost-effectiveness which was comparable to the study conducted by Federico Bardazziet al in Italy.

Azithromycin is an orally administered macrolide that has a wide spectrum of activity. It is characterized by rapid and extensive uptake from the circulation into intracellular compartments and by a long half-life of 68 hrs. The drug remains in the tissues for prolonged periods from 2 to 4 days at levels higher than the minimum inhibitory concentration for many common pathogens, making azithromycin a betoken alternative to conventional antibiotics,[3]

Sanjeev Sharmaet al., concluded that photosensitivity was not reported in any patient, though they used the drug during summer season. This is another advantage of azithromycin over other antibacterials used in acne. They added that the mode of action of azithromycin is mainly antibacterial and anti-inflammatory, but not keratolytic. The study also highlighted that azithromycin has great advantage over other systemic antibacterials because it is long acting and can be used in single dose three times weekly which distinguishes it from other acne drugs. [1]

Long term employment of antibiotics in patients harboring acne lesions has lead to concerns regarding bacterial resistance and colonization with potential pathogen agents. The presence of antibiotic resistant Propionibacterium acne is correlated with a weaker clinical response. The incidence of PA resistance in the UK is estimated to be 65 percent for erythromycin and clindamycin and 40 percent for tetracycline and doxycycline, whereas there are no reports on resistance to azithromycin. Moreover, streptococcus pyogenes resistance is accompanied by a history of antibiotic treatment for acne. A 20 to 27.4% resistance to azithromycin has been documented in streptococcus pyogenes species. As a result, clinicians should employ strategies to prevent bacterial resistance and in cases where pathogen agents are resistant, they should therapeutic approaches to decrease it. [7]

References


